CONTENTS

		PAGE
Assessment of some factors affecting the prevalence of foot-and-mouth disease among traditionally managed animal population in Punjab state: Socio-economic and animal health related interests	S S Saini, J K Sharma and M S Kwatra	1
Physicochemical and biological characterization of Indian isolates of equine influenza virus	V G Rana, M L Mehrotra, J M Kataria and K C Verma	5
Chemotherapy of paratuberculosis in goats: Streptomycin, refampicin and levamisole versus streptomycin, rifampicin and dapsone	S K Das, R P Sinha and H V S Chauhan	8
Delayed hypersensitivity-inducing and serological properties of various proteins obtained from *Mycobacterium bovis*	S K Srivastava and A A Kumar	14
Naturally occurring nematode infection in Kenyan sheep resistant to oxfendazole anthelmintic	C M Ndarathi	21
Histopathological changes at *Hyalomma anatolicum anatolicum* feeding sites on tick-resistant calves	D P Banerjee, R R Momin and S Samantaray	24
Cytochemical studies on sperm succinate dehydrogenase among cattle and buffaloes	B R Benjamin, Greesh Mohan and R P Verma	28
Changes in total protein and cholesterol contents of uterus and vagina during oestrous cycle of Marwari goats	R S Jaiswal and V M Mehta	31
An enzyme-linked immunosorbent assay to detect antibodies against fowl adenovirus type-1	Bhushan Lal, N K Maiti, M S Oberoi and S N Sharma	35
Earlier detection of clumps by microagglutination test with shaking in *Salmonella* organisms	B R Gupta and J C Verma	38
Sero-prevalence of brucellosis in equines in some of the states in India	M P Yadav, B K Singh and P K Uppal	41
Dehydrogenases in the liver of cattle naturally infected with *Fasciola gigantica*	M Bhattacharya, A Mukit and G K Baruah	43
Hepatic vascular lecions in caprine schistosomiasis	I Vyas, G D Sharma and U K Vyas	45
Development of *Taenia solium* Linnaeus, 1758 in golden hamsters	T K Varma and S S Ahluwalia	48
Incidence of *Oestrus ovis* in sheep and goats in Rajasthan state of India	K M L Pathak	50
Coccidiosis in Japanese quail in India	J R Rao and N N Sharma	51
Bilateral biometrical analysis of orbit and associated foramina in bovine	M R Malik, K C Rao, M L Parmar and J S Taluja	53

		PAGE
Anatomy of the ischiatic nerve (N. ischiadicus) of yak	S K Gupta and D N Sharma	55
Topographic anatomy of the lungs in goat and Yashwant Singh	Ishwar Singh, Suraj Kumar and Yashwant Singh	57
Effect of age on superovulation response, embryo recovery and their quality in cattle	S K Agarwal, V K Taneja, U Shankar and M C Yadav	59
Normal blood levels of molybdenum in farm animals	H S Sandhu, T J Singh, K S Dhillon and S S Sidhu	61
Nutritive evaluation of *Setaria anceps* cv. kazungula, *S. anceps* cv. narok, *Pennisetum clandestinum* and *Avena sativa* forages	B Singh and M P Narang	63
Species identification in unprocessed meats through agarose isoelectric focusing of urea-extracted proteins and myoglobin	J Abraham and P V Rajulu	69
Certain qualitative characteristics of stored duck carcasses	K P Reddy and N V R Rao	75
Breeding efficiency and milk producing ability of Red Kandhari and Jersey x Red Kandhari halfbred cows	B S Shelke, P G Sakhare and K S Deshpande	79
Effect of nitrogen fortification on protein degradability of silages based on sugarcane tops in fistulated steers	M S Reddy, D A Prasad and N Krishna	81
Damaged soybean in broiler diet	J J Gupta, Arun Verma, B P S Yadav and H K Gupta	83
Egg production response of pullets fed low calcium diets with or without added fishmeal	M E Haque, S D Chowdhury and S M Bulbul	87
Effect of thermal exposure on some of the hormones in Patanwadi and its crosses	J S Patel, V M Mehta, K R Tajane, V V Kulkarni and N S Radadia	89
Speed and strides of different breeds of camel	A K Rai, A K Roy and N D Khanna	91
Effect of additives on the antibacterial property of *Lactobacillus bulgaricus* WS	J B Amin, R S Singh and H Chander	93
Pathogenicity of egg drop syndrome-1976 virus strains in chicken oviduct organ culture	S Shakya and R G Dhawedkar	97
Prevalence of anaemia in goats of alluvial zone of West Bengal	S Sarkar, M K Bhowmik, D N Basak, S Pan and S K Misra	100
Haematobiochemical responses to whole blood transfusion in anaemic calves	N K Srivastava and N N Pandey	103
Pathology of zearalenone toxicosis in chicken and evaluation of zearalenone residues in tissues	K I Maryamma, C B Manomohan, M G Nair, P K Ismail, T Sreekumaran and A Rajan	105
Progesterone and oestradiol 17-β in relation	S K Agarwal, V K Taneja,	108

		PAGE
to ovulation rate, quantity and quality of embryos in crossbred cattle	P C Sanwal and V P Varshney	
Isolation of bluetongue virus from sheep	K Nachimuthu, A Thangavelu, G Dhinakar Raj and R A Venkatesan	112
Estimation of molecular weight of sheep IgG	Y K Reddy and N G Ramesh Babu	115
Structural proteins of capsular antigens of different *Pasteurella multocida* serotypes	N Singh, D S Sambyal and N K Maiti	117
Bacterial agents associated with lamb mortality	D V Joshi, P L Kaul and N M Shah	120
Growth studies of *Mycoplasma mycoides* subsp. *capri* and indigenous strain	A Sikdar, N C Srivastava, S K Srivastava, S K Meur and P K Uppal	122
Some observations on haematological changes in experimental *Schistosoma indicum* infection in cattle	C Rajkhowa, A R Gogoi, M R Borkakati and B C Sarma	125
Sarcocystosis in a sambar deer (*Cervus unicolor*)	B Gangadharan, K V Valsala, M G Nair and A Rajan	127
Control of snail vectors of amphistomiasis with various indigenous products	A Kumar, A R Deb, M Z Ansari and B N Sahai	129
Histomorphological structures of the test sweat glands in goat	M L Parmar, A M Shrivastava, M R Malik and J S Taluja	132
Histoarchitecture of Impala lip	G S Rao	134
Prenatal development of metanephros in Surti buffalo	K M Panchal, D M Bhayani, K N Vyas and G Baishya	137
Tracheal dimensions of camel	Pawan Kumar, Gurdial Singh, S K Nagpal and L D Dhingra	140
Functional anatomy of skeleton cruris of yak	S K Gupta and D N Sharma	142
Effect of pH and temperature on *in vitro* preservability of rabbit semen	A K Mathur, R S Srivastava, Anil Joshi and P S Rawat	144
Serotonin in egg-yolk and relation to cage density stress and production status	R P Moudgal, J N Panda and J Mohan	147
Selection free estimates of genetic parameters of production and reproduction traits of first three lactations in Murrah buffaloes	K L Raheja	149
Effect of nongenetic factors on gestation length, weight of placenta and placental expulsion time in Surti and Marwari goats	S B Deshpande and V M Mehta	155
Carcass and non-carcass traits of Muzaffarnagri lambs at different maturity levels	V S S Prasad and N K Sinha	159
Genetic divergence among White Leg-horn strains	R N Goswami and R K Shukla	165
Genetic studies on production efficiency traits	K S Deshpande, A D Deshpande	169

		PAGE
in Jersey cow	and K S Deshpande	
Evaluation of breeding values of Jersey sires used at various bull mother farms in India	C K Murdia and V N Tripathi	171
Productive and breeding efficiency of Jersey cows	K U Methekar, A D Deshpande and K S Deshpande	173
Mortality in Southdown, Deccani and Bannur crossbred lambs	N A Patil, S Prasannakumar and S Malikarjunappa	175
Effect of farm, period, season and parity on performance traits of Jersey cattle	C K Murdia and V N Tripathi	177
Inheritance and association of growth and production traits in White Leghorn at various inbreeding levels	R Sharma, S K Verma and U D Gupta	181
Evaluation and utilization of unwilted and wilted pincapple top silage in goats	T K Ghosh, M K Das, Y Tamang, G Bera, S Ghosh and S Biswas	183
Evaluation of nutritive value of water hyacinth (*Eichhornia crassipes*) in its squeezed and fresh forms	B Chakraborty, L Mandal and G C Banerjee	185
Carcass traits of Barbari kids as influenced by castration and rearing method	V S S Prasad, B U Khan and S K Singh	188
An analysis of regional concentration in population dynamics and growth rate of sheep in India	Parmatma Singh, C B Tiwari and V K Dwivedi	190
Immunological responses of calves to trivalent leptospiral antigens	K Venugopal and S Ratnam	195
Biopathological studies in experimentally induced ruminal acidosis in goats	S B Lal, S K Dwivedi, M C Sharma and D Swarup	200
Chronological changes of buffalo follicular oocytes maturation *in vitro*	Raminder Singh and A C Majumdar	205
Effect of oxytocin administration on milk letdown time, milking rate and composition of milk in buffaloes	V P Maurya and R S Ludri	210
Acid base and blood gas changes in heamorrhagic and endotoxic shock on buffalo calves	D V Singh, S P S Sodhi and K K Mirakhur	215
Efficacy of Ranikhet disease vaccine	G S Reddy, A P Kalanidhi and V A Srinivasan	220
Antibody response of broilers to different double vaccination programmes using live 'F' strain and inactivated oil-emulsion Newcastle disease virus vaccines	H R Patel, H N Kher, M K Jhala and P H Vataliya	223
In-vitro infectivity of sporozoites of *Theileria annulata* to viable lymphocytes of cattle and buffalo	S S Chaudhri and G Subramanian	225
Structure of impala auricle	G S Rao	227
Histomorphological evaluation of two differ-	P Kinjavdekar, R J Chaudhary,	230

		PAGE
ent suturing techniques and materials in experimental tracheal reconstruction in dogs	T K Gahlot and K S Deora	
Histoenzymic study of the glands in tongue of goat	Jaswant Singh, K S Roy, Bharpur Singh and R P Saigal	233
Histomorphology of the bulbourethral gland of camel	R S Sambyal and S K Nagpal	236
Topographic anatomy of the lungs of yak	Ishwar Singh, D N Sharma, R L Bhardwaj, S K Gupta and L S Sudhakar	239
Serum oestradiol levels around parturition stages in goats	A V Patel, M M Pathak and V M Mehta	241
Liver function in experimental rumen acidosis in goats	S K Das and S K Misra	243
Pathology of enterotoxaemia in sheep: An experimental study	D S Pathak and N S Parihar	245
Histamine and serotonin concentration in caprine uterine tissue	I V Mogha	249
Semen characteristics and behavioural patterns of buffalo bulls in relation to age and seasons	M R Bhosrekar, J R Purohit, S B Gokhale and B R Mangurkar	251
Experimental therapeutic trial in paddy-straw-induced alkaline indigestion in buffalo calves	C S Randhawa, S S Randhawa and D C Nauriyal	256
Effect of supplementation of ammoniated wheat straw diets with green berseem in buffaloes	D V Reddy, U B Singh and U R Mehra	261
Effect of rumen liquor urease (rumen microbes), temperature and treatment time on chemical properties of fibre and *in sacco* digestibility of ammoniated wheat straw	B Singh and H P S Makkar	266
Nutritive evaluation of rain tree (*Samanea saman)* pods	N S Thole, A L Joshi and D V Rangnekar	270
Effect of replacing cereals on some carcass traits and economics of swine production under rural management	S K Sinha, R A Singh and B D Sharma	273
Effect of nongenetic factors on birth weight, gestation period and lactation yield of Red Kandhari and its crosses	B S Shelke, P G Sakhare and K S Deshpande	278
Determination of 'effective protein degradability' of some unconventional protein sources in cattle by nylon-bag technique	M Sudhakara Rao, N Krishna and D Anjaneya Prasad	280
Ingestive behaviour of crossbred calves	M M Kale, R S Manik and O S Tomer	282

		PAGE
Incidence of penicillium toxins in milk and milk prodocts	R S Singh, M K Sharma and H Chander	285
Effect of dietary clusterbean-meal and clusterbean-gum on intestine and liver of broilers: A biochemical and histopathological study	Sukhdev Singh, Om Parkash Surekha Bhatia and Vijay Verma	287
Buffalo interleukin-2 and its effect on proliferation of lymphocytes	B B L Mathur, M P Bansal, G C Ram and M V Subbarao	291
Anatomy of the nasal cavity of Gaddi goat	S K Gupta, D N Sharma and R L Bhardwaj	294
Effect of feeding *Leucaena leucocephala* with *Phaseolus aconitifolius* on growth and thyroid status of camel calves	A K Rai, N D Khanna and S P Agarwal	297
Seasonal changes in plasma volume, adrenocortical hormones, osmolality and electrolytes during pregnancy and at parturition in Bakri and Rahmani ewes	A K Okab, M Y Mekkawy, I M Elbanna, G A Hassan, F D El-Nouty and M H Salem	302
Pharmacokinetics, urinary excretion and dosage regimen of sulphamethoxy pyridazine in buffalo calves	P K Sidhu and A K Srivastava	307
Metabolic effects of surgical stress in buffaloes	R K Singh and Amresh Kumar	311
Spontaneous lesions occurring in parathyroid gland of goats	C Ramakrishna and M C Prasad	315
Pharmacological characterization of adrenoceptors in circular smooth muscles of chicken proventriculus	S P Verma, S K Garg and B D Garg	318
Histomorphological studies of ampulla in goats	S K Pyne and H V S Chauhan	320
Histoenzymic study on the liver of rhino (*Rhinoceros unicornis*)	M Bhattacharya, A Chakraborty and A Mukit	322
Anatomical epiphyseal closure times in thoracic limbs of buffalo	B G Panchamukhi, K B Patel and M C Desai	324
Serosal patch grafts in intestinal defects in buffaloes	R Tayal, D B Patil, D Sharifi, K Singh and S K Mahajan	328
Biometrical studies on the trachea of goat	P Kumar, G Singh and L D Dhingra	330
Succinic dehydrogenase activity in the reproductive organs of the Surti buffaloes during oestrous cycle	Sweta P Pandya, K N Vyas, D M Bhayani and P R Pandya	332
Some metabolic constituents of caprine foetal fluids and foetal serum	R Aidasain, R A S Chauhan, S Tiwari and S P Shukla	335
Effect of various levels of glycerol on keeping quality of buffalo semen in dilutors without	S Kumar, K L Sahni, Greesh Mohan and B R Benjamin	337

		PAGE
yolk at refrigeration temperature		
Effect of filtration through Sephadex and glass wool on the quality and freezability of semen of crossbred bulls	Sumant Vyas, Greesh Mohan, A J Dhami and K L Sahni	341
Age-related variation in comb growth, testicular size and phosphomonoesterases activity in the testes of domestic fowl	J Mohan, R P Moudgal and J N Panda	344
Factors affecting some milk production efficiency traits in Sahiwal cattle	S K Singh	346
Evaluation of Jersey bulls for first lactation milk yield	K Gupta, J S Dhillon and O S Parmar	351
Prediction of digestible crude protein and total digestible nutrients from proximate constituents and *in vitro* dry-matter digestibility from cell-wall constituents present in different forages for ruminants	A S Virk, P C Gupta and V K Khatta	354
Nitrogen distribution in urea-, ammonium hydroxide and urine-treated wheat straw at different temperatures and treatment periods	B Singh	358
Effect of feeding wheat straw and oat hay on rumen microbial and enzymic activities in cattle and buffalo	S K Bhatia, K Pradhan, S Singh, D C Sangwan and Vidya Sagar	364
A comparison of chemical composition, cell-wall content, digestibility and degradation kinetic characteristics as predictors of forage intake	B Singh and M P Narang	369
Influence of age-by-carcass weight classification on carcass traits of Barbari and Jakhrana male goats	V S S Prasad, N K Sinha, S K Singh and B U Khan	374
A comparative study on growth pattern of exotic and *desi* pigs, and their halfbreds under farm and village conditions of rearing	B D Sharma, S K Singh, C B Dubey and H R Mishra	378
Wheat straw processing by solid substrate fermentation with *Coprinus fimetarius*	Kishan Singh and S N Rai	381
Effect of urea and/or steam treatment on cell-wall components of sugarcane bagasse	E Raghava Rao, B S Gupta and J P Srivastava	383
Draught capacity and fatigue symptoms under ploughing stress in camel	A K Roy, A K Rai and N D Khanna	387
Identification and pathogenicity of bacterial agents isolated from piglet enteritis	J K Sarkar and J P Soman	391
Induction of acquired resistance in crossbred calves against larvae of *Boophilus microplus*	D N Panda, M Z Ansari and B N Sahai	398
Novocaine blockade effect on wound	P V Parikh, J N Mistry,	402

		PAGE
healing	B G Panchamukhi and D M Tadkod	
Andrological evaluation of Jersey bulls	H K Verma, G D Singh and H C Pant	405
Serum proteins of growing camels during the first year of life	M F Hussain, N S Salah and H H Mogawer	410
Immunoprecipitation tests for detection of IBR virus	D Aruna and T Suri Babu	414
Seroprevalence of precipitating antibodies to bluetongue virus among domestic ruminants of Punjab State	S S Saini, J K Sharma, N K Maiti and M S Kwatra	416
Flourescent antibody technique in the diagnosis of infectious bursal disease	G Dinakar Raj, A Thangavelu, K Nachimuthu and A T Venugopalan	418
Trypanosoma infection in cattle and buffalo	D Ray, Gita Biswas and G P Sen	420
Histomorphological study on prenatal development of skin in Surti buffaloes	D M Bhayani, K M Panchal, K N Vyas and G Baishya	421
Histochemical method for identification of tissue eosinophils in Japanese quail	S D Singh and G C Mohanty	424
Intravenous retrograde anaesthesia of limbs in yaks	J-M Nigam, A C Varshney, Mohinder Singh and S K Sharma	427
Alkaline phosphatase and peroxidase activities in uterus and vagina of Marwari goat during oestrous cycle	R S Jaiswal and V M Mehta	429
Superovulation response of Hariana cows with PMSC/FSH	T K Datta, V K Taneja and Uma Shankar	432
Quality of oocytes from different sized follicles of buffalo ovaries obtained from slaughterhouse	R Selvaraj, A C Majumdar and M R Ansari	434
Seasonal changes in the activity and morphology of the sweat glands of goats	Mohammad E Azal, I Abdel Aziz El-Azaway and Mohamed M Fat-Halla	436
Role of caeca in protein, fat, calcium and phosphorus retention	S Majumdar, T S Johari and J N Panda	438
Zinc, copper and iron contents of blood serum of cattle and sheep in semiarid tract of Rajasthan	A K Ghoshal and G N Mathur	441
Effect of age and seasons on production performance of Surti buffalo bulls	M R Bhosrekar, J R Purohit, S B Gokhale and B R Mangurkar	443
Restriction fragment length polymorphism studies of the major histocompatibility locus of buffaloes-BuLA	Sanjeev Kumar, PN Bhat, T J Rasool and P P Bhat	448
Effect of feeding malt sprout on the nutrients digestibility and rumen metabolities in buffaloes	Satbir Singh, V K Paliwal and P C Gupta	452
Comparative *in vitro* gas production rate of untreated, urea-treated and fungal-treated wheat straw for evalution as feed	B N Gupta, G P Singh, T K Walli and Kishan Singh	456
Relevance of frame size and fatness indices to live animal and carcass classification	V S S Prasad and M K Agnihotri	461

		PAGE
in goats		
Comparative study of variance-covariance components of economic traits between different lactations estimated from single trait and multi-trait procedures	K L Raheja	467
Sister chromatid exchange frequency in Sahiwal cattle	VK Vijh, R Sahai, Ashwani Sharma and I D Gupta	473
Heritability estimates of body weight at different ages, first lactation traits and efficiency of milk production in Holstein-Friesian crosses	G N Rao and R Nagarcenkar	477
Analysis of milk yield, lactation length and dry period in Surti buffaloes	S P Tailor, L S Jain and M Tusavara	479
A comparative study on the effect of genetic and nongenetic factors of Landrace, Tamworth and *desi* pigs and their crosses on some reproductive characters	A Mukhopadhyay, R L Singh and S K Singh	482
Use of unprocessed *mahua (Madhuca indica* J F Gmel) seed-cake as feed for growing crossbred calves	P M Talpada, K M S Murthy H B Desai and P C Shukla	485
Effect of feeding variously treated straws on rumen metabolism, fluid volume and flow rate in buffaloes	J P Puri, P D Kapoor, M Gupta and A R Rao	489
Body dimensions of Marwari type goats in farmers' flock	A D Taneja, S B S Yadav, Anju Chahar, R K Joshi and K P Pant	492
Epizootiological studies on egg drop syndrome in poultry	Ram Kumar, G C Mohanty and K C Verma	497
Salmonella 3, 10: r surface interactions with intestinal epithelial microvilli	Rakesh C Yashroy	502
Immune responses in rabbits immunized against the tick, *Hyalomma anatolicum anatolicum*	G S Manohar and D P Banerjee	505
Cross-resistance to heterologous tick species in rabbits immunized with whole antigen extracts of *Hyalomma anatolicum anatolicum*	G S Manohar and D P Banerjee	513
Gross and histopathological observations on the effects of therapeutic ultrasound in experimental acute traumatic arthritis in calves	R Bhatia, V K Sobti and K S Roy	517
Therapeutic efficacy of honey in infected wounds in buffaloes	S K Gupta, Harpal Singh, A C Varshney and Prem Prakash	521
Histomorphology of prenatal goat placenta	O P Tawani, G P Tiwari and R A S Chauhan	524
In vivo culture in rabbit oviduct of *in vitro* fertilized bubaline oocytes	R S Ahluwalia and A C Majumdar	528

		PAGE
Ultrastructure of leukocytes in peripheral blood of impala (*A. melampus*)	G S Rao	532
Influence of age on biochemical alterations in blood of rats	M F Mahmoud, I A Ibrahim, M F Dowidar, Y M Shehata, Y L Awad, A A El-Ghanam and A Mansour	537
Prevalence of infectious bovine rhinotracheitis (IBR) virus antibodies in buffaloes of Andhra Pradesh	D Aruna and T Suri Babu	540
Effect of propagation in BHK21 cell-line on virulence of velogenic New castle disease virus	K Kumanan, A Padmaraj and V D Padmanaban	542
Comparison of immunogenicity of whole culture flagellar and somatic antigens of *Clostridium chauvoei* strain 49 in guineapigs and mice	K P Singh, N S Parihar, B N Tripathi and P C Harbola	544
Pharmacological investigations into the effect of 5-hydroxytryptamine on oesophagus, crop and proventriculus of WLH chicken	S P Verma, S K Garg and B D Garg	547
Morphology of the laryngeal cartilages of yak	Ishwar Singh and D N Sharma	549
Induction of cerebrocortical necrosis in goats	P S Lonkar and M C Prasad	551
Reproduction failure in female camels during an abattoir survey	F K Al-Ani K H Zenad and M R AL-Shareefi	553
Repeatability of physiological responses to high ambient temperature in sheep	U D Gupta and R M Acharya	556
Certain blood biochemical studies during experimental dermatomycosis in dogs	Rajiv Khosla, P Rai and S C Saxena	559
Occurrence of *Sarcocystis hircicanis* in goat	R K Sharma and H L Shah	561
Histoenzmic evaluation of buffalo endometrium	N S Bugalia, R D Sharma and R P Saigal	564
Frequency distribution of silver-stained nucleolus organizer regions of chromosomes 3, 4 and 6 in three breeds of Indian buffaloes	B Prakash and C R Balakrishnan	566
Repeatability estimates of some of the economic traits of Sahiwal cattle over different farms	R S Gandhi and M Gurnani	571
Factors affecting body weights of Avivastra lambs	Gurmej Singh and J S Dhillon	574
Market potential for broilers in Madras city, India	Ramu Govindasamy, V Kannan and S Varadarajan	581
Distribution of nucleolus organizer regions in Indian buffaloes	B Prakash and C R Balakrishnan	588

		PAGE
A stochastic model to describe the milk yield in buffaloes	D Kumar, the Late O P Sharma and V P Manglik	591
Utilization of proximate nutrients and intake of dry matter as influenced by urea-treated cattle waste-wheat straw bedding in buffalo calves	Sajjan Sihag and K R Yadav	593
Influence of holding time of Murrah buffaloes in milking barn before commencement of milking on their milking behaviour, milk yield and composition of milk	S S Bhagat and N S R Sastry	595
Effect of castration on the fatty acids of sheep carcass adipose tissues	A A El-Shahat and S M Saad	598
Effect of different types of fat on the quality of goat meat kababs	Mir Salahuddin, N Kondaiah and H B Joshi	600
Immunodiagnostic tests for the detection of *Clostridium perfringens* type C infection	B N Tripathi, N S Parihar, K P Singh and A A Kumar	607
Pathology and pathogenesis of *Clostridium chauvoei* infection in guineapigs	K P Singh, N S Parihar and B N Tripathi	611
Combined effect of different levels of yolk and glycerol on freezing and storage of buffalo semen in different diluents	S Kumar, K L Sahni, Greesh Mohan and B R Benjamin	616
LDH and succinate dehydrogenase activities in relation to species and muscle types	R L Prasad and L N Singh	622
Comparison of sweat glands, skin characters and heat tolerance coefficients amongst Murrah, Surti and nondescript buffaloes	V R Saravanakumar and M Thiagarajan	625
Serum lipids of indigenous and White Leghorn layers in their key physiological states	V G Joshi, N A Rajwade, N K Desai and B A Talvelkar	629
Antimicrobial sensitivity of bacterial isolates from respiratory tract infection of goats in Sikkim	K C Mishra	635
Actinomyces pyogenes mastitis	A K Maina	637
Potato plant (*Solanum tuberosum*) induced dermatitis in Indian buffaloes	R Somvanshi, J C Biswas and M S Sastry	639
Laryngeal cartilages in Gaddi sheep	Ishwar Singh and D N Sharma	642
Effect of ultrasonic therapy on the healing of experimental tendinous injuries in dogs	P S Bansal, V K Sobti and K S Roy	644
Influence of experimental fever on the plasma levels of sulphadimidine in buffalo calves following oral administration	S K Mody, R M Tripathi, M S Makkar, C G Joshi and J K Malik	647
Plasma progesterone levels in heifers	M S Saxena and S K Gupta	649
Age-related changes in the carbon dioxide transport capacity of chicks	S P S Gill, S P S Singh, Rajvir Singh, M S Setia and P K Trehan	652
Genetic parameters of 300 days and part lactation milk yields of Hariana cattle	Vinod Kumar, V P S Chauhan and B P Singh	655
Environmental covariances among months	V P S Chauhan and J F Hayes	659

		PAGE
within herd-year for milk, fat and protein yields of Canadian Holsteins		
Estimates of heritability of utero-vaginal disorders in a herd of Murrah buffaloes	S S Tomar and V N Tripathi	663
Effect of certain micromineral status in the soils and forages of alluvian tropics on the incidence of nutritional anaemia in grazing sheep	S Sarkar, K C Das, S Pal Chowdhury, M K Bhowmik and B N Mukherjee	665
Goitrogenic effect of cassava in broiler rabbits	J N Ratnakumar and A Rajan	670
Evaluation of soybean and glandless cotton seed-meal	A E Tag El-Din, A M Nour, K El-Shazly and E Hassan	677
Effects of homogenization conditions on the quality and yield of buffalo milk Mozzarella cheese	A H Jana and K G Upadhyay	681
Seasonal variation in physiological response of crossbred calves under different housing systems	A S Parihar, P K Jain, H S Singh, V P Singh and N P Singh	686
Influence of inbreeding on performance of Tharparkar cattle	P K Vij, A E Nivsarkar, D S Balain and Des Raj	689
Herd structure and calving pattern in crossbred cattle	Triveni Dutt, V K Taneja and Avtar Singh	692
Nutritive value of forage groundnut (*Arachis hagenbeckii* Harms) for sheep	R S Upadhyaya, V C Pachauri and J N Gupta	694
Endogenous nitrogen excretion and available protein from a diet based on *Theobroma cacao* seed shell fed to growing West African dwarf goat	A A Adeloye	697
Decorticated Job's tears (*Coix lachrymā*) grain as poultry feed	J J Gupta, H K Gupta and B P S Yadav	699
Mortality pattern in piglets : A statistical analysis	A N Rao, O P Paliwal, Rajendra Singh and C Ramakrishna	701
Growth studies on foot-and-mouth-disease virus type 'O' in different cell systems	S P Nair and A K Sen	707
Pathoanatomical responses to *Clostridium perfringens* type C infection/toxin in ligated jejunal loops in guineapigs	B N Tripathi, N S Parihar and K P Singh	711
Performance of ticks fed on cattle (*Bos taurus* × *Bos indicus*) immunized with whole antigen extracts of *Hyalomma anatolicum anatolicum*	D P Banerjee and G S Manohar	715
Hormonal profile in superovulated Hariana cows	T K Datta, V K Taneja and P C Sanwal	720
Effect of early castration on performance carcass characteristics and meat acceptability in Baladi goat kids	A A Azamel, A A Elsherbiny, S S Bafa, M M Mokhtar and M F Shehata	723
Serum proteins, immunoglobulins and haemo-	V B Joshi, S S Saini and S S Sodhi	728

		PAGE
lytic complement levels in the sera of buffalo neonates		
Observations on the intrarenal vasculature in cow	R K Ghosh and A K Datta	732
Prediction of age in buffalo from bone measurements of pelvic limb	M C Desai, K B Patel, K R Tajane and B G Panchamukhi	735
Scanning electron microscopic study of camel spermatozoa	A Ranga and A K Rai	739
Treatment of endometritis with prostaglandin F 2 alpha in Nili-Ravi buffaloes	K R Chohan, R A Chaudhry and M A Chaudhry	742
Incidences of morbid conditions in livers of slaughtered bullocks	S W Dhote, Sadhna Patil, R D Sadekar, M V Joshi and S S Bhagwat	745
Plasma thyroidal and adrenocortical hormones during different developmental stages in buffalo heifers	R Kumar and P J S Rattan	747
Comparison of different methods of sire evaluation	B P Singh, Vinod Kumar and V P S Chauhan	749
Performance of hens grouped by weight and fed different levels of protein in semi-arid region	H Najib and M N Al-Dosari	754
Detoxification of mahua-cake by water washing and its *in vitro* evaluation	S M Chahal and D D Sharma	758
Effect of feed restriction and sex of the bird on performance of broilers housed in cages under the climatic conditions of Saudi Arabia	H Najib and F N Al-Mulhim	762
Thermal stability of tertiary butyl hydroquinone in ghee	Rajesh Kumar and Darshan Lal	768
Factors affecting production performance of Tharparkar cattle	P K Vij, A E Nivasarkar, D S Balain and Des Raj	772
Factors influencing wool production and wool characteristics in Rambouillet ewes	T A S Ganai and G M Wani	775
Genetic relationship of production and feed efficiency traits in a strain of White Leghorn	A K Yadav, S K Verma, R B Prasad and U D Gupta	777
Genetic divergence based on feed and water intake and ewe productivity traits in sheep	K R Tajane, V V Kulkarni, H H Panchasara and J S Patel	779
Effect of supplementation of concentrate on body-weight gain and serum constituents in camel	R C Jakhmola and A K Roy	782
Effects on performance and carcass quality of feeding date syrup in drinking water as a substitute for barley in rations for lambs	E S E Gaili and A A El-Naiem	785
Carcass characteristics of the Yankasa ram	C U Osuhor	787
Determination of minimum inhibitory concentration of antibiotics against *Salmonella* organisms from animal sources by	J C Verma and B R Gupta	793

		PAGE
using a multiple inoculator		
Pathology of *Sarcocystis miescheriana* in experimentally infected pigs	P K Solanki, H O P Shrivastava, H L Shâh and R P Awadhiya	797
Histomorphological study on the endocrine cells of grastrointestinal mucosa of domestic ruminants	U K Mishra and L N Das	802
Cardiovascular and respiratory effect of diazepam glyceryl-guaiacolate induced ketamine anaesthesia in calves	K I Singh, S N Sharma, V K Sobti and K K Mirakhur	807
Prediction of freezability on the basis of seminal plasma enzymatic profiles in Murrah, Friesian and crossbred bulls	Greesh Mohan, K L Sahni, A J Dhami and R P Tripathi	811
Keeping qualities of cattle blood on storage at 4°C with different anticoagulants	N K Srivastava and N N Pandey	816
Characterization of plasma LH and testosterone release as a response to GnRH treatment in Surti buffalo bull calves	V M Mehta, Lalita V Deshpande, R G Shah, R Nigam, N P Sarvaiya and V B Kharadi	824
Application of dot-enzyme immunoassay for the detection of avian adeno and avian adeno-associated viruses	M Khanna, M S Oberoi, S M S Swahney and S N Sharma	830
Assessment of some managemental factors responsible for prevalence of brucellosis among traditionally managed animal population of Punjab	S S Saini, J K Sharma and M S Kwatra	832
Salmonella virchow : *In vitro* elimination of R-factor	J C Verma and B R Gupta	835
Microscopic changes in bovine udder quarters infected by non-haemolytic micrococcaceae	T A Nagatia, N E Jensen and B B Berg	837
Pathological changes in buffalo calves after experimental infection with *Acholeplasma oculi*	H S Banga, P P Gupta and N Sood	840
The subclavian artery of camel (*Camelus dromedarius*)	R K Jain and L D Dhingra	843
Studies on synchronization of oestrus, superovulation and recovery of embryos in goats	S V Doijode, S A Bakshi, D R Pargaonkar and N M Markandeya	846
Effect of time and season of insemination on fertility of Deccani and its Dorset halfbred ewes	U Y Bhoite, S U Bhoite, D P Koratkar and M S Deshpande	849
Estimation of environmental effects on milk yield in Hariana cattle by least-squares and maximum likelihood methods	V P S Chauhan, Vinod Kumar and B P Singh	851
Factors affecting body weights of Avikalin lambs	Gurmej Singh and J S Dhillon	855
Correlation between live body measurement, slaughter offals and carcass traits of	Muharib A Tahir	861

		PAGE
camels		
Surti buffaloes in their breeding tract	A K Mathur and M P Nagpal	866
Ensiling and nutritional evaluation of bovine rumen contents (BRC) fortified with different nitrogen sources	V Prabhakara Gupta, N Krishna and N Muralidhara Rao	876
Influence of the nature and level of dietary fibre on plasma lipid and cholesterol in chicken	J J Gupta and K S Singh	880
Catecholamines in egg-yolk of good or poor layers during summer under different housing systems	R P Moudgal, R P Mishra, J N Panda and S D Ahuja	886
Effect of concentration on the salt balance and heat stability of goat milk	Shiv Ram and J S Sindhu	890
Genetic and nongenetic factors affecting body weights and measurements in Jamunapari goats	Sanjeev Kumar, P N Bhat, P P Bhat and S K Palia	894
Nongenetic factors affecting performance of pigs	S Jayarajan and V Ulaganathan	899
Sire-, dam- and sire x dam-strain interaction for part and annual characters in White Leghorns	N P Singh, M L Chaudhary, G S Brah and J S Sandhu	904
Status of certain macrominerals in cattle in relation to soil and plants of Midnapore district of West Bengal	K C Das, S Sarkar, B N Mukherjee, S Palchowdhry and M K Bhowmik	907
Growth response of crossbred weaner lambs during and after removal of thermal and nutritional stresses	S M K Naqvi and O K Hooda	910
Experimental production of enterotoxaemia in sheep	D C Pathak and N S Parihar	915
Haematо-biochemical changes in cows suffering from arrhythmias and myocardial infarction	A N Salim and H C Joshi	920
Clinico-biochemical changes in mercuric chloride induced nephrotoxicity in cattle	T P Parai and N N Pandey	924
Changes in blood and cerebrospinal fluid indices in experimental lead toxicity in goats	D Swarup and S K Dwivedi	928
Comparative studies on buffalo adenohypophyseal proteins using polyacrylamide-gel electrophoresis	N C Nath and L N Singh	932
Detection of antibody against sperm surface antigens using modified enzyme-linked immunosorbent assay	K S Sidhu, J Kapur, A S Grewal and S S Guraya	939
An attempt to detect rinderpest antigen in brain	A Thangavelu, G Dhinkar Raj, R Govindarajan, K Nachimuthu and A T Venugopalan	941

		PAGE
Sharing of antigens between hydatid and *Cysticercus tenuicollis*	K Prasuna, Y V B Gangadhara Rao, M V Subba Rao and B V Rao	942
Breeding habitats of *Culicoides schultzei* (Enderlein 1908) (Diptera: Ceratopogonidae)	E W Narladkar, U V Shastri and P R Shivpuje	944
Incidence and biology of snail vectors of paramphistome infection in Bihar	A Kumar, A R Deb, M Z Ansari and B N Sahai	946
Efficacy of deltamethrin against ectoparasites of dogs	M C Sharma, D Swarup, S B Lal and Anup Bhaumik	948
Glans penis of the Indian one-horned rhinoceros (*Rhinoceros unicornis*)	M Bhattacharya, A Chakraborty, G Baishya and S Dey	950
Axillary artery of camel	R K Jain and L D Dhingra	952
Fertilization of *in vitro* matured buffalo oocyte by cattle spermatozoa	R Selvaraj, D Sharma, M R Ansari and A C Majumdar	955
Service period in the Angora goat and its crosses	D Z Jagtap, R S Bansod and N D Belhe	958
Murrah buffaloes in their breeding tract	A K Mathur and the Late B S Mathur	961
Genetic improvement in milk production through embryo transfer	V K Taneja, Avtar Singh, P N Bhat and K L Raheja	977
Fungal treatment of crop residues for quality improvement	N S Maan, V K Khatta, D V S Dahiya and N Kumar	983
Utilization of water-hyacinth hay in feeding of growing sheep	A R Tag El-Din	989
Chromosomal profile of White Bengal goats	S Bhatia and V Shanker	993
Body weight and body measurements of Zalawadi goats reared under field condition	T K Sanghani, J M Patel and M R Dhangar	997
Factors affecting preweaning and post-weaning growth in Jakhrana goats	S Tyagi, A K Goel, S B Sood and K P Agrawal	999
Effect of replacement of fish-meal in the calf starter by groundnut-cake and mustard-cake on the performance of crossed calves	M K Gupta, B B Srivastava, N N Pathak and H N Pandey	1002
Seasonal variation in breeding behaviour of farm and field buffaloes	S P Tailor and L S Jain	1005
Cloacal temperature and egg quality traits	A G Khan and A V Rauthod	1007
Rapid detection of capsulating virulent anthrax bacilli	B Premkumar David, T G Prabhakar, C Venkatasubba Rao and R A Venkatesan	1011
Zoonotic importance of brucellosis at Behera Governorate in Egypt	A H El-Gohary and S A Hattab	1015
Helminths recovered from the liver and lungs of camel with special reference to their incidence and pathogenesis in Shiraz, Islamic Republic of Iran	N Moghaddar, A Oryan and M R Hanife Pour	1018
Incidence of *Campylobacter jejuni* in chicken and their carcasses sold at Bombay city	N M Kulkarni, A T Sherikar, A A Sherikar, B G Tarwate, A M Paturkar	1024

		PAGE
	and H V Murugkar	
Cell types of the epididymis of goat	G S Bilaspuri and Amandeep Kaur	1028
Effect of shock on certain biochemical profiles of blood in calves	D V Singh and S P S Sodhi	1031
Monitoring of serological response in goat given killed *Mycoplasma capri* vaccine by indirect haemagglutination test	N C Srivastava, A Sikdar and R Somvanshi	1037
Study on hypovitaminosis as in cattle under famine conditions	M S Vasishta, P K Aeran, C K Sharma and J S Bhatia	1039
Leptospiral antibodies among sheep and goat	S Ratnam, C O R Everared, B Suresh, J C Alex, L Suresh Babu, V Jayakumar and K Manickavel	1041
Epidemiology of *Sarcocystis capracanis* in goats at Bikaner, Rajasthan, India	Lal Singh, P M Raisinghani, K M L Pathak, D Kumar, G S Manohar, A K Bhan, J K Arora and C P Swarankar	1044
Prevalence of gastrointestinal parasites in wild mammals and captive birds at Bannerghatta National Park, Bangalore	N R Jayagopala Reddy, M S Jagannath, Placid E D Souza, S Abdul Rahman and K Basasavarajappa	1046
Therapeutic management of mercuric chloride induced nephrosis in cattle	T P Parai and N N Pandey	1049
Histology of the vomeronasal organ in goat	Pawan Kumar, Suraj Kumar and Yashwant Singh	1052
A comparative study on the osmotic pressure of buffalo and cattle seminal plasma	Bhupal Singh, Greesh Mohan and K L Sahni	1055
Alu 1 restriction enzyme banding of metaphase chromosomes of Bengal goats	S Bhatia and V Shanker	1057
Genetic studies of FMD in buffaloes	S S Tomar and V N Tripathi	1060
Effect of feeding wastelage on nutrient utilization and growth performance of buffalo calves	A S Yadav and Vidya Sagar	1063
Response of urea-molasses supplement on live weight gain and nutrient utilization in buffalo calves	A Sahoo, U B Singh, U R Mehra and A V Elanogovan	1067
Effect of dietary calcium and inorganic phosphorus on the performance of laying coturnix quail	M V L N Raju, P V Rao, V Rajasekhara Reddy and V Ramasubba Reddy	1072
Housing effect on crossbred cows in a hot-humid climate physiological responses	M Thiagarajan and C K Thomas	1077
Economic performance of different ruminant livestock keeping systems of rural households in a south Indian province	N S R Sastry, P Bullerdieck and Ch F Gall	1083
Stall feeding vs range feeding of goats	G S Solanki	1092
Comparative efficiency of various analytical methods for fat and total solids determined gravimetrically in formalin preserved milk samples	V K Bajaj and T Rai	1096

		PAGE
Effect of chemical dipping on quality and shelf-life of dressed chicken during storage	C M Mahapatra, S K Anand and S S Verma	1099
Chromosomes of Indian domestic donkey (*Equus asinus*)	R K Vijh, R Sahai and Ashwani Sharma	1103
Genetic and nongenetic factors affecting growth performance in *desi* pig and its crosses	Sukh Deo, A K Chhabra, R L Arora, Satya Paul and G S Bisht	1107
Survivability of Rambouillet and its crosses with Australian Merino in first three months of life	T A S Ganai and R S Pandey	1109
Genetic effects of full-sib mating on growth and production traits in White Leghorn population	Jagdish Rai, S K Varma and U D Gupta	1112
Effectiveness of alkaline hydrogen peroxide treatment of crop residues	M Wadhwa, G S Makkar and J S Ichhponani	1114
Pathogenicity of caprine strain of *Mycobacterium paratuberculosis* in rabbits	D Mondal and R P Sinha	1117
Electrophoretic and immunological studies on Surti buffalo blood serum and follicular fluid proteins	A P Parmar and V M Mehta	1121
Evaluation of some indirect tests for detecting sub-clinical mastitis	U V T Pednekar, D Swarup and B B Srivastava	1126
Prenatal growth index of goat	M R Malik, K C Rao, M L Parmar and J S Taluja	1131
Cytopathic effect of peste-des-petits ruminants virus in vero cells	G Dhinakar Raj, A Thangavelu, K Nachimuthu and A T Venugopalan	1135
Occurrence of mixed infection of rinderpest and foot-and-mouth disease at an organized farm	S S Rautmare, G R Kamath, S G Kulkarni, S V Kulkarni and S V Pathak	1137
Salmonella virchow: in vitro transfer of R-factor	J C Verma and B R Gupta	1139
Salmonella serotypes in animals and poultry in north-eastern hills region	S S Ghosh	1141
Invasiveness of *Staphylococcus* in mammary gland of mouse	H Rahman, D C Pathak, K Sharma and B R Boro	1144
Aeromycological survey inside the broiler and layer shed	K S Verma and S Bhandari	1147
Serological response in rabbits immunized with extracts of *Rhipicephalus sanguineus*	S Abdul Rahman, G C Puttalakshmamma and M S Jagannath	1150
Organ specificity of hydatidosis in buffaloes	P Ramakrishna Reddy, Md Hafeez, E G T V Kumar and S Hasina	1153
Treatment of helminthiosis in elephants	D S T Rao, S Yathiraj, P C Choudhuri and P Konda Reddy	1155
Histogenesis and mode of growth of choroid plexus in goat foetuses	M R Malik, J S Taluja and M L Parmar	1157
Gross anatomy of the nasal conchae in goat	Ishwar Singh, Suraj Kumar and Yashwant Singh	1160

		PAGE
Studies on circumference (mm) and cross-sectional area (mm^2) of ventricles in heart of pre-and-post hatch fowl	D K Rajpal, A M Shrivastava, M R Malik, J S Taluja and M L Parmar	1164
Characteristics of atretic follicles in the starved hen	R K Parshad and S K Basrai	1167
Histopathological changes in relation to testosterone levels in bulls with complete loss of libido	M C Verma and N P Singh	1170
Cogenital abnormalities of udder and teats of buffaloes	S Prasanna Kumar, Vivek R Kasaralikar, K M Krishna Bhat, P Basavaiah and B Basavarajappa	1172
Biochemical behaviour, biotyping, haemolysin production and enterotoxigenecity of *Escherichia coli* isolated from meat products	N K Sharma, D V Joshi and M S Kwatra	1175
Effect of holding time on post-thaw revival of buffalo spermatozoa	Greesh Mohan, K L Sahni and Satish Kumar	1178
Treatment of experimental nitrate poisoning with tolonium chloride in buffalo calves	D Gupta, Bhoop Singh, A U Bhikane and D N Rajguru	1180
Estimation of age in buffalo by radiographic epiphyseal closure times: The thoracic limb	K B Patel, M C Desai, D M Tadkod and B G Panchamukhi	1183
Plasma biochemical changes associated with magnesium administration in hypomagnesaemic and normomagnesaemic calves	C M Mulei	1186
Genotype x environment interactions for some economic traits in Holstein x Sahiwal crosses	V P Rao, V K Taneja and Avtar Singh	1189
Factors affecting follicle traits in Patanwadi. Marwari and crossbred sheep	J V Solanki and R K Shukla	1193
Relative rumen microbial profile of cattle and buffalo fed wheat straw-concentrate diet	Sadhana Singh, K Pradhan, S K Bhatia, D C Sangwan and Vidya Sagar	1197
Effect of feeding barley, maize or oat grains in concentrate on rumen fermentation and nutrient utilization in crossbred cattle	Tapas Kumar Dutta and S S Thakur	1203
Factors affecting fat percentage and total fat in Gir crosses	B D Naikare, K M Kale, D Z Jagtap and V S Narawade	1209
Effect of non-genetic factors on production and reproduction traits in Murrah buffaloes	R K Sethi and R Nagarcenkar	1212
Effect of fungal treatment on chemical composition of sorghum hay and bagasse	S L Gulati	1216
Utilization of paper waste in the complete diet of adult crossbred bullocks for maintenance	P R Pandya and P M Talpada	1218
Effect of two systems of housing and concen-	L S K Singh and N Singh	1221

PAGE

trate: roughage ratio on some physiological parameters of buffalo heifers

Book Reviews 193, 495, 603, 703, 790, 913